

FULL RESERVE STUDY

St. Clair Terraces Association



**Grosse Pointe, Michigan
January 4, 2018**



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St. Clair Terraces Association
Grosse Pointe, Michigan

Dear Board of Directors of St. Clair Terraces Association:

At the direction of the Board that recognizes the need for proper reserve planning, we have conducted a *Full Reserve Study* of St. Clair Terraces Association in Grosse Pointe, Michigan and submit our findings in this report. The effective date of this study is the date of our visual, noninvasive inspection, January 4, 2018.

This *Full Reserve Study* exceeds the Association of Professional Reserve Analysts (APRA) standards fulfilling the requirements of a "Level I Full Reserve Study."

An ongoing review by the Board and an Update of this Reserve Study are necessary to ensure an equitable funding plan since a Reserve Study is a snapshot in time. We recommend the Board budget for an Update to this Reserve Study in two years. We look forward to continuing to help St. Clair Terraces Association plan for a successful future.

As part of our long-term thinking and everyday commitment to our clients, we are available to answer any questions you may have regarding this study.

Respectfully submitted on January 17, 2018 by

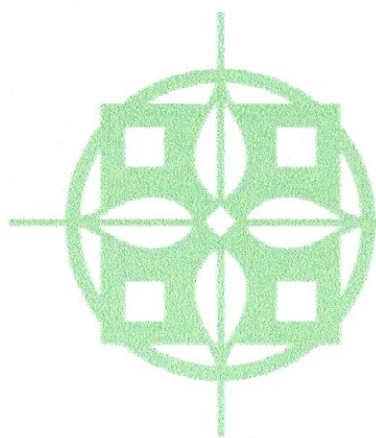
Reserve Advisors, Inc.

Visual Inspection and Report by: Stephanie A. Mueller, RS²
Review by: Alan M. Ebert, PRA¹, RS, Director of Quality Assurance



¹ PRA (Professional Reserve Analyst) is the professional designation of the Association of Professional Reserve Analysts. Learn more about APRA at <http://www.apra-usa.com>.

² RS (Reserve Specialist) is the reserve provider professional designation of the Community Associations Institute (CAI) representing America's more than 300,000 condominium, cooperative and homeowners associations.



RESERVE

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Long-term thinking. Everyday commitment.

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1. RESERVE STUDY EXECUTIVE SUMMARY

Client: St. Clair Terraces Association (St. Clair Terraces)

Location: Grosse Pointe, Michigan

Reference: 171891

Property Basics: St. Clair Terraces Association is a townhome style development of 30 units in one building. The building was built in 1930.

Reserve Components Identified: 19 Reserve Components.

Inspection Date: January 4, 2018.

Funding Goal: The Funding Goal of this Reserve Study is to maintain reserves above an adequate, not excessive threshold during one or more years of significant expenditures. Our recommended Funding Plan recognizes threshold funding years in 2024, 2027 and 2047 due to replacement of sloped and flat roofs.

Cash Flow Method: We use the Cash Flow Method to compute the Reserve Funding Plan. This method offsets future variable Reserve Expenditures with existing and future stable levels of reserve funding. Our application of this method also considers:

- current and future local costs of replacement
- 1.2% annual rate of return on invested reserves
- 1.5% future Inflation Rate for estimating Future Replacement Costs

Sources for Local Costs of Replacement: Our proprietary database, historical costs and published sources, i.e., R.S. Means, Incorporated.

Cash Status of Reserve Fund:

- \$36,081 as of January 1, 2018
- 2018 budgeted Reserve Contributions of \$30,000
- A potential deficit in reserves might occur by 2024 based upon continuation of the most recent annual reserve contribution of \$30,000 and the identified Reserve Expenditures.

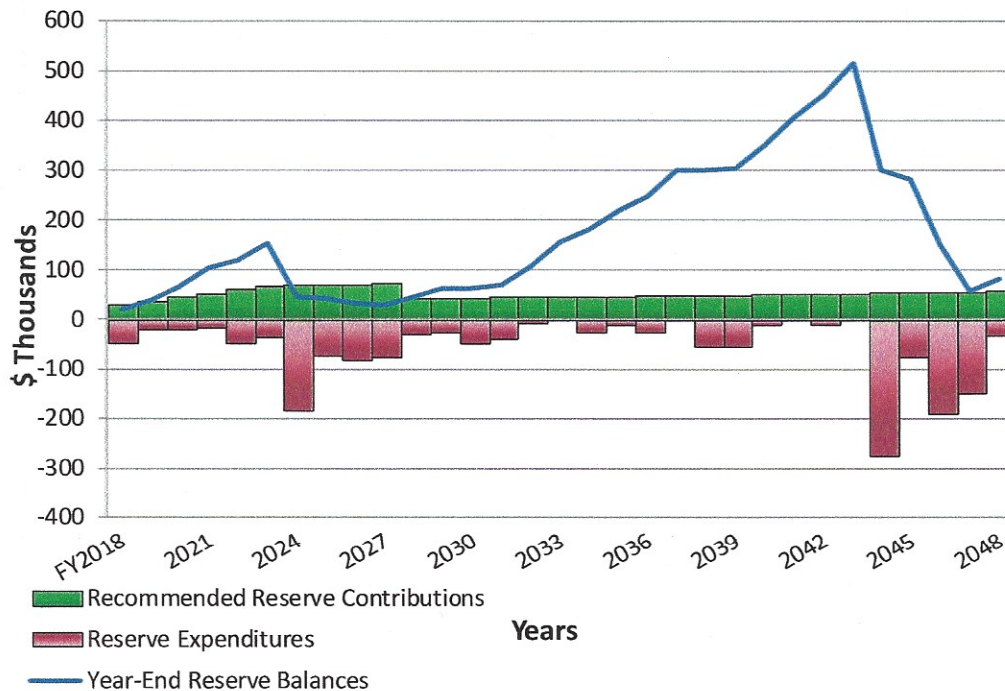
Project Prioritization: We recommend the Association prioritize masonry repairs, especially at the garage walls and stoops in the next five years based on the conditions identified.

Recommended Reserve Funding: We recommend the following in order to achieve a stable and equitable Funding Plan:

- Phased increases of \$7,800 from 2019 through 2023
- Inflationary increases from 2024 through 2027
- Decrease to \$43,000 by 2028 due to fully funding for replacement of sloped and flat roofs
- Inflationary increases through 2048, the limit of this study's Cash Flow Analysis
- Initial adjustment in Reserve Contributions of \$7,800 represents an average monthly increase of \$21.67 per homeowner and about a six percent (5.9%) adjustment in the 2018 total Operating Budget of \$131,480.

St. Clair Terraces Recommended Reserve Funding Table and Graph

Year	Reserve Contributions (\$)	Reserve Balances (\$)	Year	Reserve Contributions (\$)	Reserve Balances (\$)	Year	Reserve Contributions (\$)	Reserve Balances (\$)
2019	37,800	38,824	2029	43,600	63,894	2039	50,600	302,348
2020	45,600	65,783	2030	44,300	62,263	2040	51,400	349,310
2021	53,400	104,198	2031	45,000	69,341	2041	52,200	406,015
2022	61,200	118,920	2032	45,700	108,341	2042	53,000	453,923
2023	69,000	155,195	2033	46,400	156,319	2043	53,800	513,493
2024	70,000	43,336	2034	47,100	180,365	2044	54,600	298,867
2025	71,100	42,196	2035	47,800	220,574	2045	55,400	282,621
2026	72,200	32,438	2036	48,500	247,418	2046	56,200	149,707
2027	73,300	30,651	2037	49,200	299,882	2047	57,000	57,184
2028	43,000	45,440	2038	49,900	300,776	2048	57,900	83,096





2. RESERVE STUDY REPORT

At the direction of the Board that recognizes the need for proper reserve planning, we have conducted a *Full Reserve Study* of

St. Clair Terraces Association

Grosse Pointe, Michigan

and submit our findings in this report. The effective date of this study is the date of our visual, noninvasive inspection, January 4, 2018.

We present our findings and recommendations in the following report sections and spreadsheets:

- **Identification of Property** - Segregates all property into several areas of responsibility for repair or replacement
- **Reserve Expenditures** - Identifies reserve components and related quantities, useful lives, remaining useful lives and future reserve expenditures during the next 30 years
- **Reserve Funding Plan** - Presents the recommended Reserve Contributions and year-end Reserve Balances for the next 30 years
- **Reserve Component Detail** - Describes the reserve components, includes photographic documentation of the condition of various property elements, describes our recommendations for repairs or replacement, and includes detailed solutions and procedures for replacements for the benefit of current and future board members
- **Methodology** - Lists the national standards, methods and procedures used to develop the Reserve Study
- **Definitions** - Contains definitions of terms used in the Reserve Study, consistent with national standards
- **Professional Service Conditions** - Describes Assumptions and Professional Service Conditions
- **Credentials and Resources**

IDENTIFICATION OF PROPERTY



Our investigation includes Reserve Components or property elements as set forth in your Declaration. The Expenditure tables in Section 3 list the elements contained in this study. Our analysis begins by segregating the property elements into several areas of responsibility for repair and replacement.

Our process of identification helps assure that future boards and the management team understand whether reserves, the operating budget or Homeowners fund certain replacements and assists in preparation of the annual budget. We derive these segregated classes of property from our review of the information provided by the Association and through conversations with Management. These classes of property include:

- Reserve Components
- Long-Lived Property Elements
- Operating Budget Funded Repairs and Replacements
- Property Maintained by Homeowners
- Property Maintained by Others

We advise the Board conduct an annual review of these classes of property to confirm its policy concerning the manner of funding, i.e., from reserves or the operating budget. The Reserve Study identifies Reserve Components as set forth in your Declaration or which were identified as part of your request for proposed services. Reserve Components are defined by CAI as property elements with:

- St. Clair Terraces responsibility
- Limited useful life expectancies
- Predictable remaining useful life expectancies
- Replacement cost above a minimum threshold

Long-Lived Property Elements may not have predictable Remaining Useful Lives or their replacement may occur beyond the 30-year scope of the study. The operating

budget should fund infrequent repairs. Funding untimely or unexpected replacements from reserves will necessitate increases to Reserve Contributions. Periodic updates of this Reserve Study will help determine the merits of adjusting the Reserve Funding Plan. We identify the following Long-Lived Property Elements as excluded from reserve funding at this time.

- Structural Frames
- Walls, Fiber Cement Siding

The operating budget provides money for the repair and replacement of certain Reserve Components. The Association may develop independent criteria for use of operating and reserve funds. For purposes of calculating appropriate Reserve Contributions, we identify the following list of Operating Budget Funded Repairs and Replacements:

- General Maintenance to the Common Elements
- Expenditures less than \$2,500 (These relatively minor expenditures have a limited effect on the recommended Reserve Contributions.)
- Asphalt Pavement, Crack Repair, Patch and Seal Coat
- Decks, Wood, Paint Finishes —
- Doors, Common Storage
- Electrical Systems, Common
- Irrigation System, Controller
- Landscape
- Paint Finishes, Steel Railings
- Paint Finishes, Touch Up
- Other Repairs normally funded through the Operating Budget

Certain items have been designated as the responsibility of the homeowners to repair or replace at their cost. Property Maintained by Homeowners, including items billed back to Homeowners, relates to unit:

- Doors, Entrance and Garage, Excluding Paint Finishes
- Electrical Systems
- Heating, Ventilating and Air Conditioning (HVAC) Units
- Interiors
- Light Fixtures
- Pipes (Within Units)
- Windows

Certain items have been designated as the responsibility of others to repair or replace. Property Maintained by Others relates to:

- Concrete Sidewalks, Along St. Clair Avenue and Maumee Avenue (City of Grosse Pointe)
- Fences and Guard Rail, North and East Perimeters (City of Grosse Pointe and Neighboring Properties)

RESERVE EXPENDITURES

Years 2034 to 2048

**St. Clair Terraces
Association**
Grosse Pointe, Michigan

Line Item	Total Quantity	Per Phase Quantity	Units	Reserve Component Inventory	Estimated 1st Year of Event	Life Analysis, Years		Unit (2016)	Costs, \$		30-Year Total (Inflated)	Years 2034 to 2048																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
						Useful	Remaining		Per Phase (2016)	Total (2016)		2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
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1.140	26	13	Each	Chimneys, Masonry, Inspections and Repairs, Phased (2018 is partial)	2018	b 8	0 to 8	550.00	7,150	14,300	65,714	9,073				9,530																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			

RESERVE EXPENDITURES

Years 2018 to 2033

**St. Clair Terraces
Association**
Grosse Pointe, Michigan**Explanatory Notes:**

- 1) 1.5% is the estimated future inflation rate for estimating future replacement costs.
 2) FY2018 is Fiscal Year beginning January 1, 2018 and ending December 31, 2018.

Costs, \$										Life Analysis, Years		Reserve Component Inventory															
Line Item	Total Quantity	Per Phase Quantity	Units	Estimated 1st Year of Event	Useful Remaining	Unit (2018)	Per Phase (2018)	Total (2018)	30-Year Total (Inflated)	RUL = 0 FY2018	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15		
											2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033		
Exterior Building Elements																											
1.140	26	13 Each	Chimneys, Masonry, Inspections and Repairs, Phased (2018 is partial)	2018	to 8	0 to 8	550.00	7,150	14,300	65,714	1,750			7,589				8,054				8,549					
1.157	1,350	450 Square Feet	Decks, Wood, Phased	2021	15 to 25	3 to 11	34.00	15,300	45,900	74,216			15,999				16,981				18,023						
1.180	1	1 Allowance	Foundations, Capital Repairs	2020	5 to 10	2	10,000.00	10,000	10,000	49,707	10,302							11,605									
1.240	2,800	2,800 Linear Feet	Gutters and Downspouts, Aluminum, Residential	2024	15 to 20	6	11.00	30,800	30,800	79,037						33,578											
1.241	500	250 Linear Feet	Gutters and Downspouts, Aluminum, Garages	2026	15 to 20	8 to 9	11.00	2,750	5,500	14,549							3,066	3,144									
1.260	260	260 Squares	Roofs, Asphalt Shingles	2024	15 to 20	6	500.00	130,000	130,000	333,600						142,148											
1.530	110	55 Squares	Roofs, Thermoplastic, Phased	2026	15 to 20	8 to 9	1,150.00	63,250	128,500	338,938							71,251	72,319									
1.540	8,400	2,100 Linear Feet	Sealants, Windows and Doors, Phased	2022	to 20	4 to 28	5.50	11,550	46,200	119,185				12,259	12,443						13,809	14,017					
1.760	3,100	3,100 Square Feet	Walls, Fiber Cement Siding, Paint Finishes	2025	8 to 10	7	2.50	7,750	7,750	30,168							6,801										
1.819	1	1 Allowance	Walls, Masonry, Near Term Garage and Storage Room Repairs	2018	8 to 12	0	24,000.00	24,000	24,000	24,000																	
1.820	31,300	15,650 Square Feet	Walls, Masonry, Inspections and Repairs, Phased	2022	to 8	4 to 5	1.30	20,345	40,690	209,939				21,593	21,917						24,325	24,690					
1.860	2,900	2,900 Square Feet	Walls, Stucco and Wood, Paint Finishes and Capital Repairs	2020	to 8	2	3.00	8,700	8,700	43,247	8,963						10,097										
Property Site Elements																											
4.045	1,250	1,250 Square Yards	Asphalt Pavement, Total Replacement (incl. catch basin repairs)	2025	15 to 20	7	34.00	42,500	42,500	110,697							47,168										
4.140	3,700	280 Square Feet	Concrete Sidewalks, Partial	2024	to 65	6 to 30+	10.00	2,600	37,000	16,588						2,843					3,063						
4.169	2	1 Allowance	Concrete Sloops, Near Term Repairs, Phased	2018	to 5	1	20,000.00	20,000	40,000	40,000	20,000																
4.170	43	2 Each	Concrete Sloops (incl. masonry repairs, railings), Partial	2024	to 65	6 to 30+	2,000.00	4,000	88,000	25,521						4,374					4,712						
4.420	30,000	30,000 Square Feet	Irrigation System	2048	to 40	30	0.70	21,000	21,000	32,825																	
4.560	7	7 Each	Light Poles and Fixtures	2032	to 25	14	900.00	6,300	7,760												7,760						
4.650	1	1 Allowance	Pipes, Subsurface Utilities, Laterals, Repairs	2022	to 85+	4	6,000.00	6,000	6,000	38,373	6,963																
Anticipated Expenditures, By Year																											
											\$1,652,164	45,750	20,000	19,265	15,969	47,809	34,380	183,043	72,750	82,403	75,463	28,665	25,798	46,683	38,707	7,760	0

RESERVE FUNDING PLAN**CASH FLOW ANALYSIS
St. Clair Terraces
Association****Individual Reserve Budgets & Cash Flows for the Next 30 Years**

	FY2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Grosse Pointe, Michigan																
Reserves at Beginning of Year (Note 1)	36,081	20,669	38,824	65,783	104,198	118,920	155,195	43,336	42,196	32,438	30,651	45,440	63,894	62,263	69,341	108,341
Total Recommended Reserve Contributions (Note 2)	30,000	37,800	45,600	53,400	61,200	69,000	70,000	71,100	72,200	73,300	43,000	43,600	44,300	45,000	45,700	46,400
Plus Estimated Interest Earned, During Year (Note 3)	338	355	624	1,014	1,331	1,635	1,184	510	445	376	454	652	752	785	1,060	1,578
Less Anticipated Expenditures, By Year	(45,750)	(20,000)	(19,265)	(15,999)	(47,809)	(34,360)	(183,043)	(72,750)	(82,403)	(75,463)	(28,665)	(25,798)	(46,683)	(38,707)	(7,760)	0
Anticipated Reserves at Year End	\$20,669	\$38,824	\$55,783	\$104,198	\$118,920	\$155,195	\$43,336	\$42,196	\$32,438	\$30,651	\$45,440	\$63,894	\$62,263	\$69,341	\$108,341	\$156,319
Predicted Reserves based on 2018 funding level of:							(NOTE 5)			(NOTE 5)						
							(117,942)	(182,364)								

Predicted Reserves based on 2018 funding level of: \$30,000

(continued)**Individual Reserve Budgets & Cash Flows for the Next 30 Years, Continued**

INDIVIDUAL RESERVE CONTRIBUTIONS FOR THE YEAR END (CONTINUED)															
	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048
Reserves at Beginning of Year	156,319	180,365	220,574	247,418	299,882	300,776	302,348	349,310	406,015	453,923	513,493	298,867	282,621	149,707	57,184
Total Recommended Reserve Contributions	47,100	47,800	48,500	49,200	49,900	50,600	51,400	52,200	53,000	53,800	54,600	55,400	56,200	57,000	57,900
Plus Estimated Interest Earned, During Year	2,008	2,391	2,791	3,264	3,582	3,597	3,887	4,505	5,129	5,770	4,845	3,468	2,578	1,234	837
Less Anticipated Expenditures, By Year	(25,062)	(9,982)	(24,447)	0	(52,588)	(52,625)	(8,325)	0	(10,221)	0	(274,071)	(75,114)	(191,692)	(150,757)	(32,825)
Anticipated Reserves at Year End	\$180,365	\$220,574	\$247,418	\$299,882	\$300,776	\$302,348	\$349,310	\$406,015	\$453,923	\$513,493	\$298,867	\$282,621	\$149,707	\$57,184	\$83,096
														(NOTE 5)	(NOTE 4)

Explanatory Notes:

- 1) Year 2018 starting reserves are as of January 1, 2018; FY2018 starts January 1, 2018 and ends December 31, 2018.
- 2) Reserve Contributions for 2018 are budgeted; 2019 is the first year of recommended contributions.
- 3) 1.2% is the estimated annual rate of return on invested reserves.
- 4) Accumulated year 2048 ending reserves consider the age, size, overall condition and complexity of the property.
- 5) Threshold Funding Years (reserve balance at critical point).

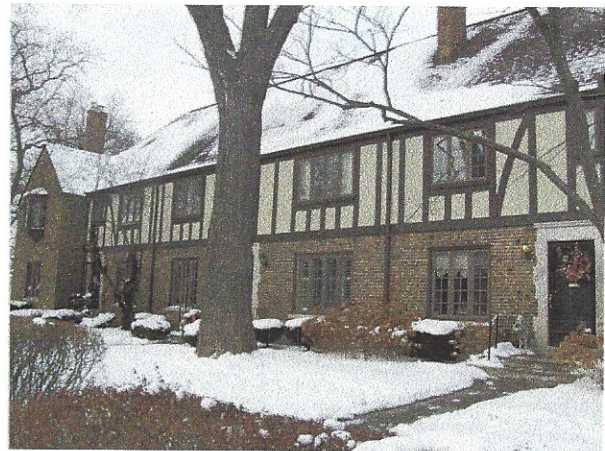
4. RESERVE COMPONENT DETAIL

The Reserve Component Detail of this *Full Reserve Study* includes *Enhanced Solutions and Procedures* for select significant components. This section describes the Reserve Components, documents specific problems and condition assessments, and may include detailed solutions and procedures for necessary capital repairs and replacements for the benefit of current and future board members. We advise the Board use this information to help define the scope and procedures for repair or replacement when soliciting bids or proposals from contractors. *However, the Report in whole or part is not and should not be used as a design specification or design engineering service.*

Exterior Building Elements



Front elevation



Front elevation



Rear elevation



Rear elevation

Chimneys

Line Item: 1.140

Quantity: 26 chimneys

History: Management informs us significant repairs were likely completed in the 1990s.

Condition: Good to fair overall based on our visual inspection from the ground. We also note one leaning chimney which the Association obtained a bid cost of \$1,750 to repair.



Mortar deterioration and previous repointing evident



Mortar deterioration



Significant area of mortar deterioration near middle



Leaning chimney

Useful Life: Inspections and capital repairs up to every eight years

Priority/Criticality: Defer only upon opinion of independent professional or engineer

Expenditure Detail Notes: Expenditure timing and costs are depicted in the **Reserve Expenditures** table in Section 3. Our estimate of cost is based on repointing of up to ten percent (10%) of the chimneys and replacement of less than four percent (3.8%) of the crowns. We also include the expenditure for repairs at the leaning chimney in 2018.

Decks, Wood

Line Item: 1.120

Quantity: Nine wood decks which comprise a total of 1,350 square feet

History: Ages vary

Condition: Fair overall condition with detached components, popped nails and weathered wood evident



Wood decks



Weathered wood



Wood deterioration and popped nails evident

Useful Life: 15- to 25-years with proper maintenance.

Component Detail Notes: Deck construction includes the following:

- Deck boards fastened with nails. Nail fasteners have a tendency to pull out as the wood warps.
- Wood railings with vertical pickets
- Wood column supported frames

Priority/Criticality: Defer only upon opinion of independent professional or engineer

Expenditure Detail Notes: Expenditure timing and costs are depicted in the **Reserve Expenditures** table in Section 3. Proper maintenance should include the following activities funded through the operating budget:

- Annual inspections to identify and correct any unsafe conditions
- Securing of loose fasteners and replacement of deteriorated fasteners
- Replacement of deteriorated wood components
- Power washing with an algaecide and application of a sealer/stain

Foundations, Capital Repairs

Line Item: 1.231

History and Condition: Management reports a history of occasional leaks into the basements. Due to the non-invasive nature of our inspection, we were not able to determine the exact cause of these leaks.

Useful Life: Foundations have an indeterminate useful life with the benefit of periodic capital repairs every 5- to 10-years.

Component Detail Notes: Capital repairs may include:

- Basement wall crack repairs, including epoxy injections
- Waterproofing of basement walls
- Drain tile replacement
- Regrading landscaping at building perimeter

Priority/Criticality: Defer only upon opinion of independent professional or engineer

Expenditure Detail Notes: Expenditure timing and costs are depicted in the **Reserve Expenditures** table in Section 3. We recommend the Association budget an allowance for repairs every eight years beginning by 2020.

Gutters and Downspouts, Aluminum

Line Items: 1.240 and 1.241

Quantity:

- Residential – Approximately 2,800 linear feet of aluminum six-inch gutters and three-inch by four-inch downspouts
- Garages – Approximately 500 linear feet

History: Ages were not available at the time of our inspection.

Condition: Good overall with limited deterioration and damaged sections evident



Aluminum gutter at residential unit



Damaged gutter at garage

Useful Life: 15- to 20-years

Component Detail Notes: The useful life of gutters and downspouts coincides with that of the asphalt shingle roofs. Coordinated replacement will result in the most economical unit price and minimize the possibility of damage to other roof components as compared to separate replacements.

Priority/Criticality: Defer only upon opinion of independent professional or engineer

Expenditure Detail Notes: Expenditure timing and costs are depicted in the **Reserve Expenditures** table in Section 3.